

AMENDMENT TO THE CLAIMS

The following claim listing replaces all prior listings and versions of the claims:

LISTING OF CLAIMS

1. (Currently Amended) A solid state imaging apparatus comprising:

a photoelectric conversion section formed in an imaging area of a silicon substrate, the photoelectric conversion section including:

a surface layer having a first conductivity type provided on a top portion of the silicon substrate,

a first semiconductor layer made of silicon having a second conductivity type, serving as a charge accumulation region, and provided under the surface layer, and

a second semiconductor layer made of silicon having the first conductivity type provided under the first semiconductor layer;

an isolation region formed in at least one part of the silicon substrate located around the photoelectric conversion section, the isolation region being made of a silicon film which fills an isolation trench formed on the semiconductor substrate;

a first silicon layer made of silicon having the first conductivity type formed in a region of the silicon substrate, and forming the bottom and sidewalls of the isolation trench; and

a second silicon layer made of silicon having the first conductivity type in contact with a bottom side of the first silicon layer, wherein an impurity concentration of the second silicon layer is less than that of the first silicon layer,

wherein the photoelectric conversion section is in contact with the isolation region, the first silicon layer, and the second silicon layer, and

the second silicon layer is in contact with a side surface of the first semiconductor layer.

2. (Cancelled)

3. (Previously presented) The solid state imaging apparatus of Claim 1, further comprising an insulating film covering the bottom and sidewalls of the isolation trench.

4-5. (Cancelled)

6. (Previously presented) The solid state imaging apparatus of Claim 1, further comprising a MOS transistor formed in the imaging area,
wherein the silicon film contains an impurity of the opposite conductivity type to source
and drain regions of the MOS transistor.

7. (Previously presented) The solid state imaging apparatus of Claim 1, wherein
the silicon film is made of amorphous silicon, polycrystalline silicon or porous silicon.

8-10. (Cancelled)

11. (Previously Presented) A camera comprising the solid state imaging apparatus
according to Claim 1.

12. (Cancelled)

13. (Currently Amended) The solid state imaging apparatus of Claim 1, wherein a depth
of the first semiconductor layer is substantially the same as that of the second silicon layer the
second silicon layer is in contact with a side surface of the first semiconductor layer.

14. (New) The solid state imaging apparatus of claim 1, wherein the isolation region is
grounded.

15. (New) The solid state imaging apparatus of claim wherein the isolation region is biased.